

BRCS26N50PA

Rev.A Jan.-2019

描述 / Descriptions

N 沟道 TO-3P 塑封封装场效应管。

N-Channel MOSFET in a TO-3P Plastic Package.

特征 / Features

快速本征整流器，低 $R_{DS(ON)}$ 和 Q_g 值，低封装电感。

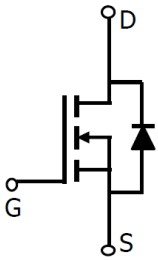
Fast Intrinsic Rectifier, Low $R_{DS(ON)}$ and Q_g , Low Package Inductance

用途 / Applications

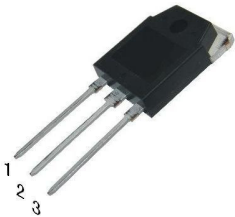
开关电源和谐振电源，DC-DC变换器，激光驱动器，交流和直流电机驱动，机器人和伺服控制。

Switch-Mode and Resonant-Mode Power Supplies, DC-DC Converters, Laser Drivers, AC and DC Motor Drives, Robotics and Servo Controls.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN 1 : Gate

PIN 2 : Drain

PIN 3 : Source

放大及印章代码 / h_{FE} Classifications & Marking

见印章说明。 See Marking Instructions.

极限参数 / Absolute Maximum Ratings(Ta=25°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Drain Source Voltage	V_{DSS}	500	V
Gate-Source Voltage	V_{GSS}	±30	V
Drain Continuous- Current(Note 1)	$I_D(T_C=25^\circ\text{C})$	26	A
Drain Current Pulsed(Note 2)	I_{DM}	104	A
Avalanche Current(Note 2)	I_{AS}	19	A
Single Pulse Avalanche Energy L=0.5mH	E_{AS}	1600	mJ
Peak Diode Recovery dv/dt	dv/dt	15	V/ns
Power Dissipation	$P_D(T_C=25^\circ\text{C})$ Derate above 25°C	290	W
		2.33	W/°C
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55~+150	°C

说明：

1. 最大结温时的漏极电流。
2. 重复范围：最大结温时的脉冲量。

Note:

1. Drain current limited by maximum junction temperature.
2. Repetitive Rating: Pulse width limited by maximum junction temperature.

热数据 / Thermal Data

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Junction to Ambient	$R_{\theta JA}$	40	°C/W
Junction to Case	$R_{\theta JC}$	0.45	°C/W

电性能参数 / Electrical Characteristics(Ta=25°C)

参数 Parameter	符号 Symbol	测试条件 Test Conditions		最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$	$I_D=250\mu A$	500			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=500V$	$V_{GS}=0V$			1	μA
Gate- Source Leakage Current Forward	I_{GSSF}	$V_{DS}=0V$	$V_{GS}=+30V$			+100	nA
Gate-Source Leakage Current Reverse	I_{GSSR}	$V_{DS}=0V$	$V_{GS}=-30V$			-100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$	$I_D=250\mu A$	3.0		5.0	V
Static Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V$	$I_D=13A$		0.17	0.2	Ω
Input Capacitance	C_{iss}	$V_{DS}=25V$ $f=1.0MHz$	$V_{GS}=0V,$		3360		pF
Output Capacitance	C_{oss}				280		
Reverse Transfer Capacitance	C_{rss}				35		
Total Gate Charge	Q_g	$V_{GS}=10V$ $I_D=26A$ (Note 1, 2)	$V_{DS}=400V$		81	120	nC
Gate to Source Charge	Q_{GS}				23		
Gate to Drain Charge	Q_{gd}				35		
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=250V$ $R_G=25\Omega$ (Note 1, 2)	$I_D=26A$		80	170	ns
Rise Time	t_R				2500	500	
Turn-OFF Delay Time	$t_{D(OFF)}$				200	400	
Fall-Time	t_F				155	320	
Maximum Body-Diode Continuous Current	I_S					26	A
Maximum Body-Diode Pulsed Current	I_{SM}					104	A
Drain-Source Diode Forward Voltage	V_{SD}	$I_S=26A$	$V_{GS}=0V$			1.4	V
Body Diode Reverse Recovery Time	T_{rr}	$I_S=26A$ $dI_F/dt=100A/\mu s$ (Note 1)	$V_{GS}=0V$		530		ns
Body Diode Reverse Recovery Charge	Q_{RR}				8.2		μC

说明：

1.脉冲测试：脉冲宽度 $\leq 300\mu s$ ，占空比 $\leq 2\%$ 。

2.本质上与工作温度无关。

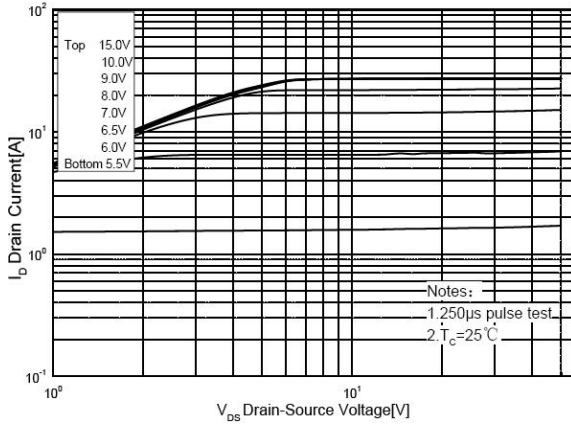
Note:

1. Pulse Test: Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

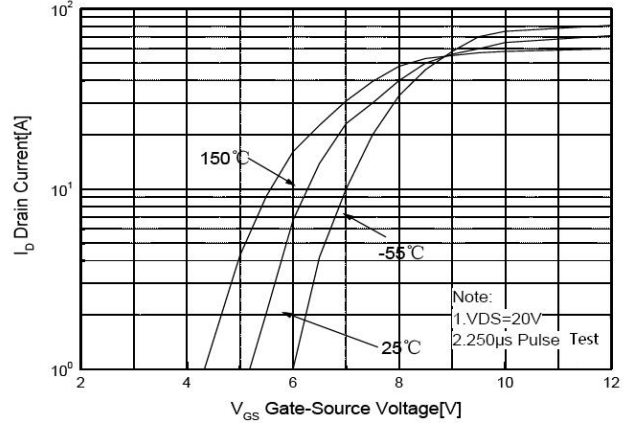
2. Essentially independent of operating temperature.

电参数曲线图 / Electrical Characteristic Curve

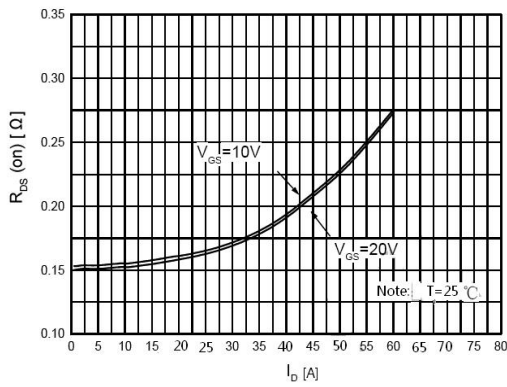
On-Region Characteristics



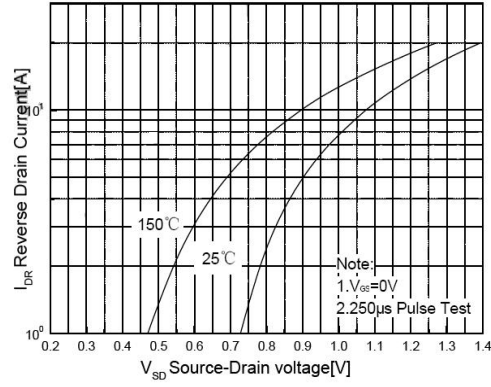
Transfer Characteristics



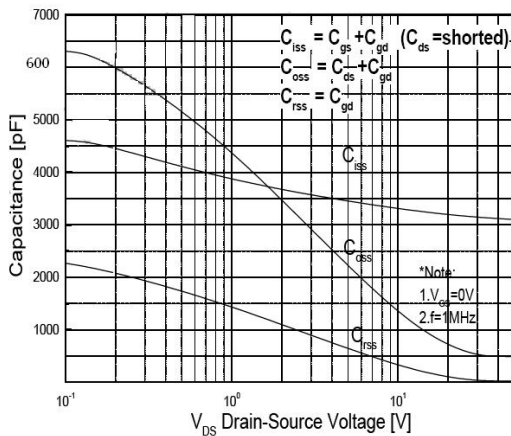
On-Resistance Variation vs Drain Current and Gate Voltage



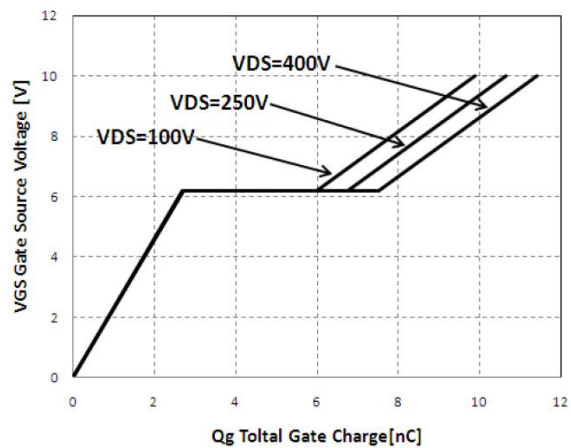
Body Diode Forward Voltage Variation vs. Source Current and Temperature



Capacitance Characteristics

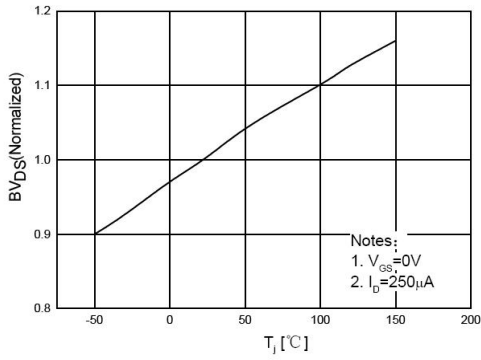


Capacitance Characteristics

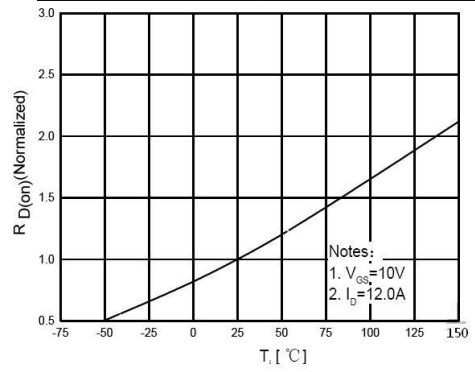


电性能参数 / Electrical Characteristics (Ta=25°C)

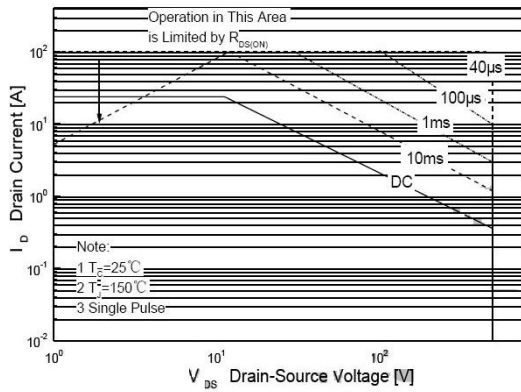
Breakdown Voltage Variation vs. Temperature



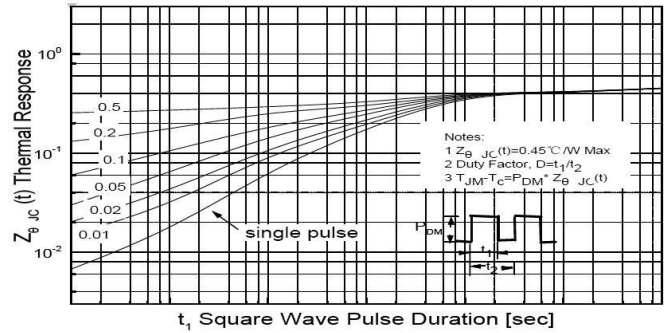
On-Resistance Variation vs. Temperature



Maximum Safe Operating Area



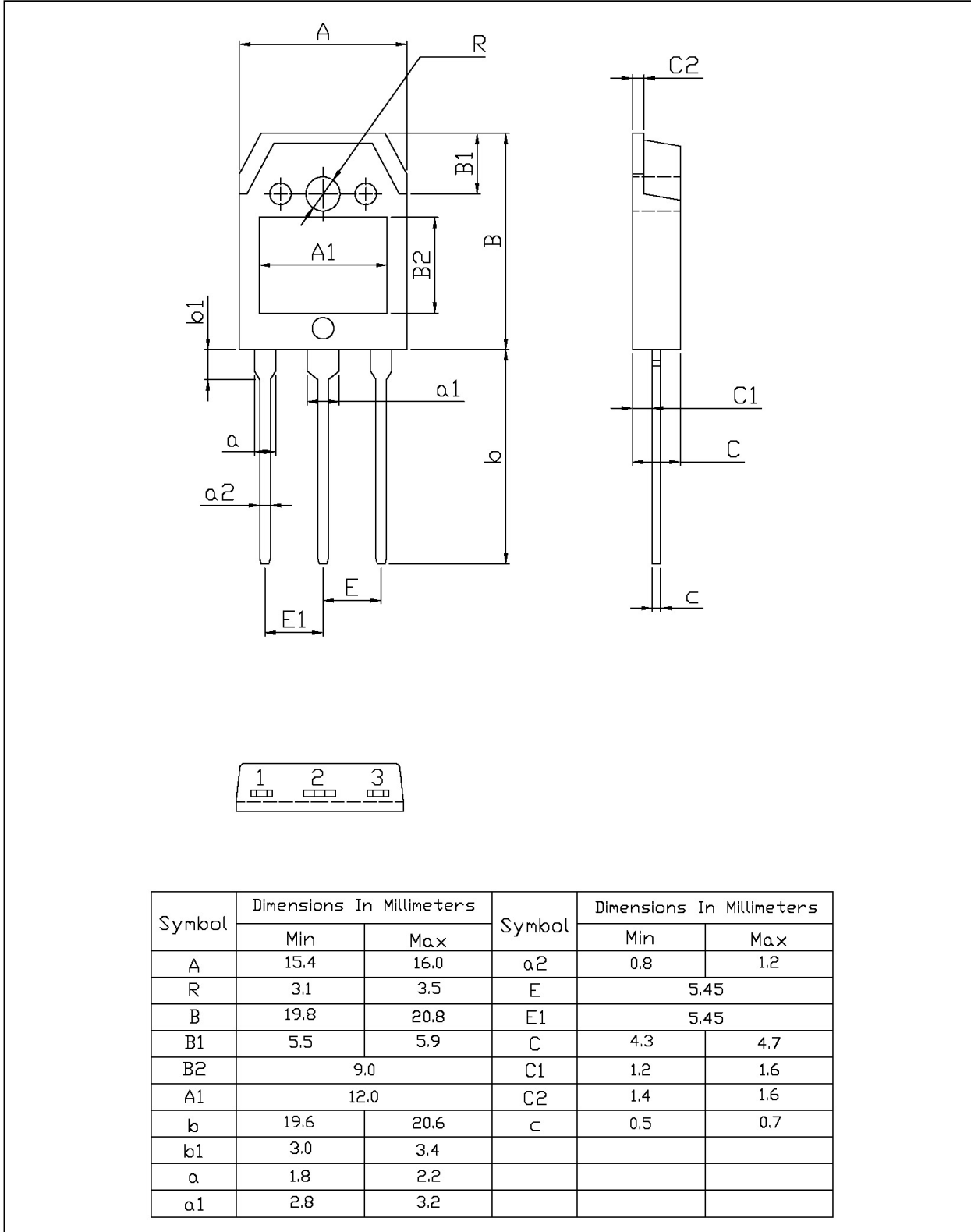
Transient Thermal Response Curve



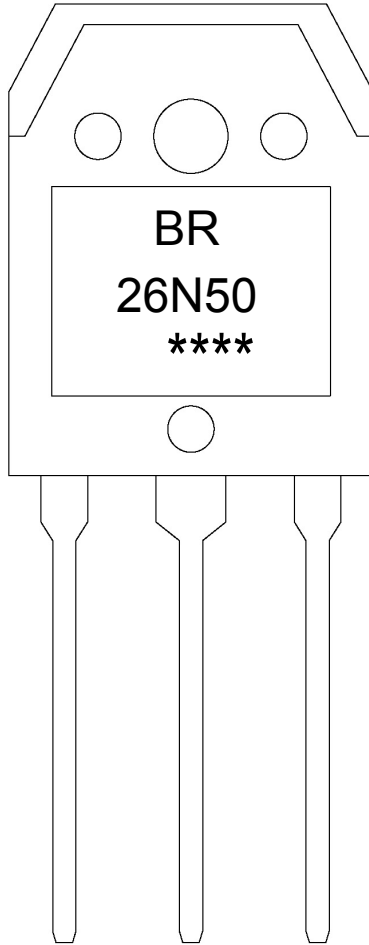
外形尺寸图 / Package Dimensions

T0-3P

单位: mm



印章说明 / Marking Instructions



说明：

BR: 为公司代码

26N50： 为型号代码

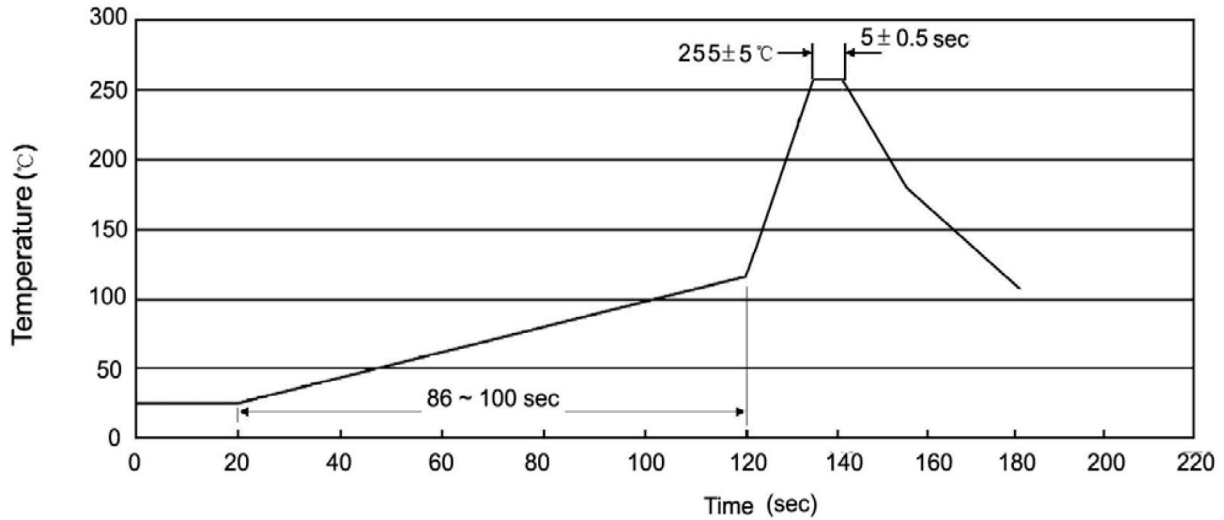
****： 为生产批号代码，随生产批号变化。

Note:

BR: Company Code.

26N50: Product Type.

****: Lot No. Code, code change with Lot No.

波峰焊温度曲线图(无铅) / Temperature Profile for Dip Soldering(Pb-Free)


说明：

- 1、预热温度 25~150°C，时间 60~90sec;
- 2、峰值温度 255±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

- 1.Preheating:25~150°C, Time:60~90sec.
- 2.Peak Temp.:255±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：270±5°C

时间：10±1 sec.

Temp:270±5°C

Time:10±1 sec

包装规格 / Packaging SPEC.

套管包装 / TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-3P	30	15	450	5	2250	497.5×46×8	555×164×50	575×290×180

使用说明 / Notices